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USING THE BINARY-COLLISION CASCADE SIMULATION CODE MARLOWE ON T--ETC(U)
MAR 80 G P MUELLER
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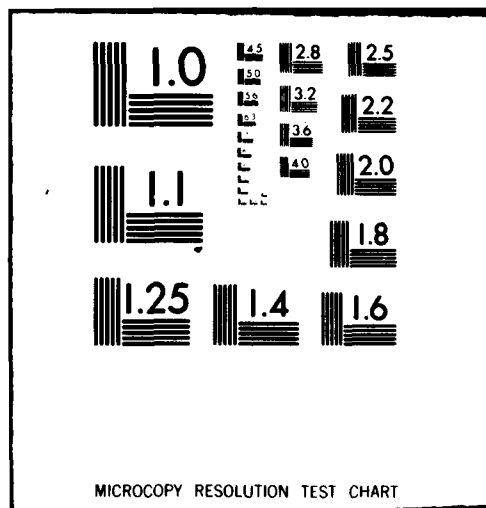
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Using the Binary-Collision Cascade Simulation Code MARLOWE on the ASC

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Radiation Technology Division*

March 20, 1980

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The binary-collision cascade simulation code MARLOWE is used to study the effects of irradiations on crystalline materials. We modified the IBM version of MARLOWE to run on the Texas Instruments ASC at NRL. This report outlines the changes made in the code and details how NRL users can access the code.		

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USING THE BINARY-COLLISION CASCADE SIMULATION CODE MARLOWE ON THE ASC

INTRODUCTION

The binary-collision cascade simulation code MARLOWE* is used to study the effects of external irradiations on crystalline materials. The code was obtained from the National Energy Software Center and is identified by them as #680.360C.

We modified the IBM double precision version of MARLOWE to run on the Texas Instruments ASC at NRL. No major changes were required. Minor changes were made to replace the machine language routines in the original, to accommodate minor differences in the compilers, and to bypass several quirks in the ASC compiler.

One of the files obtained with MARLOWE is a prologue that details the structure and use of the code. Rather than discuss our specific changes in this report, we prepared an appendix to the prologue that itemizes them. Also, we created an update file that lists all changes made in the ASC version of MARLOWE after 1 November 1979. The advantage of this method is that no further publication will be necessary after the issuance of this report.

ACCESS TO MARLOWE FILES.

The root of the pathname that allows access to the MARLOWE files is

PATH=USERCAT/D66/B50/MUELG1/MARLOW

On the next page is a list of files, pathname branches and version numbers for the various files that are available to the ASC user.

*The principal descriptions of this code are contained in:

1. M. T. Robinson and I. M. Torrens, Phys. Rev. B9 (1974) 5008.
2. M. Tou and M. T. Robinson, Nucl. Inst. Meth. 132 (1976) 641.
3. O. S. Oen and M. T. Robinson, Nucl. Inst. Meth. 132 (1976) 647.

Note: Manuscript submitted January 28, 1980.

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All of these files are contained on one tape, so a MFR-MFRE pair can be used when retrieving more than one of them.

<u>PATH/</u>	<u>VERS</u>	<u>CONTENTS OF FILE</u>
BORNFORT	0	FORTTRAN listing of the Born-Mayer routines.
BORNLMOD	0	SYS.LMOD for MARLOWE using the Born-Mayer potential.
BORNOBJL	0	Object library for Born-Mayer routines.
DATA	0	Data sets 1-4.
MAINFORT	0	The FORTRAN listing of the ASC version of MARLOWE, using the Moliere potential.
MAINLMOD	0	SYS.LMOD for MAINFORT.
MAINOBJL	0	Object library for MAINFORT.
MUELTRANF	0	Assembly language listing of the random number generator that duplicates the IBM double precision random number generator.
OUTPUT	1 2 3 4	ASC output for first data set. ASC output for second data set. ASC output for third data set. ASC output for fourth data set.
PROLOG	0	A copy of the Robinson and Torrens supplied description of MARLOWE along with the Mueller description of its use on the ASC.
SUPPLIED	1 2 3 4 5 6 7 8 9	Prologue. IBM double precision version of MARLOWE. IBM single precision version of MARLOWE. IBM assembly language routines. data set 1. data set 2. data set 3. data set 4. IBM (360/91) output for all four test runs.
UPDATE	0	Updates to the ASC portion of the prologue, including all changes made since 1 November 1979.